

ABSTRACT

SYSTEM, METHOD, AND COMPUTER PROGRAM FOR SELECTABLE OR PROGRAMMABLE DATA CONSISTENCY CHECKING METHODOLOGY

A data storage system that includes computer coupled to disk array controller which is coupled to data storage devices. First procedure provides a method to perform data consistency checking and correction of user data stored in data sectors on a data stripe. Each data sector includes data header and data stripe includes a parity sector, and parity sector includes a parity header. Data stripe is distributed across storage devices. Provides each data header with first code to provide a check for the user data stored in the data header's data segment, provides the parity header with second code to provide a check for a set of parity data stored in parity sector, and provides the parity header with third code by encoding each respective first code with second code. Third code enables user to check consistency of user data and parity data without respective operations on each byte of data in both data sectors and parity sector.